YSmart Technology Co., Ltd.

User Manual

IP Series Inverters for Grid-connected PV system

Contact Us

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Product Warranty Card（Invalid Duplicate）

Customer Feedback:

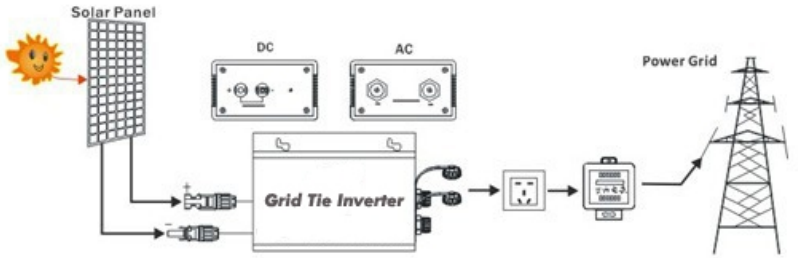
Name	
Country and/or Territory	
Telephone	
Email	
Purchase Channels and/or Sources	
Models	
Date of Purchase	
Date of Installation	
Time of Using	
Brief Fault Description	
Improvement Suggestions	

Distributor and/or Sales Representative

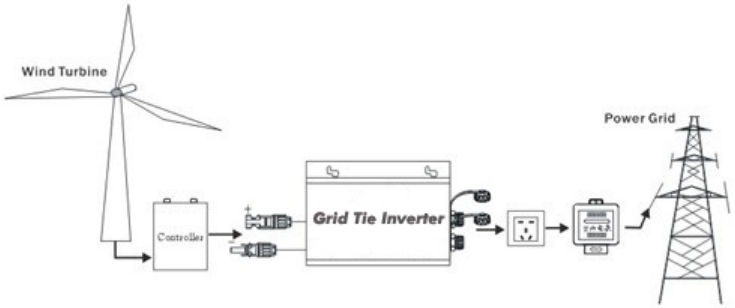
Distributor Name			
Telephone and/or Email			
Sales Representative		Date of Customer Feedback	
Date of finish Disposal		Disposal	
YSmart QC		Technician	
Others			

YSmart micro grid inverter can be used at below situations;

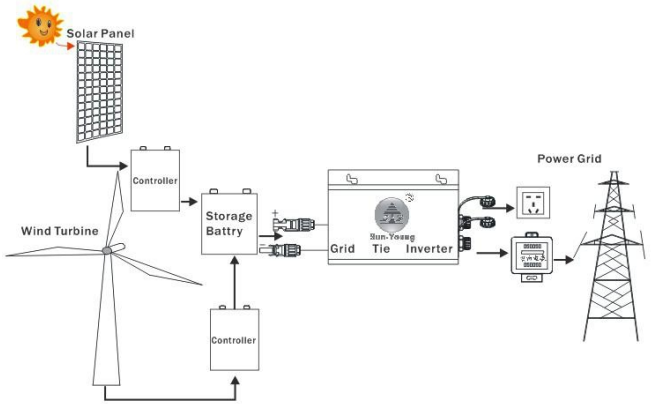
1.Work with 72cell solar panel(Vmp:36V,Voc:43V)



2.Work with wind turbine,if the wind trbine do not build in wind charge controller,need add wind charge controller



3.work with battery,you can use solar and wind to charge the battery,and the battery release the power to the grid thr inverter



YSmart Smart Microinverter Introduction

Grid tie inverter is a device which directly converts direct current into sine wave, frequency and phase are same as power grid alternating current and feed into power grid. It is a key device of power generation system such as PV power generation system, small power wind power generation system. YSmart Smart Microinverter optimized design for modularization modular power generation systems. They can use with DC power source such as the mainstream solar module such as 18V, 24V and 36V monocrystal and/or Polycrystalline solar panels, small power wind generator as well as battery for converting into alternating current which suitable for feeding into utility grid. Product is stable and reliable as well as high conversion efficiency. It is best choice for PV power generation systems and small power wind power generation systems.

YSmart Smart Microinverter can be easy placed and attached to the rack of solar panels. No need space for independent installation and low voltage DC wire of side of solar panel connecting to Smart Microinverter can eliminate the risk of high DC voltage which cause of high power centralized inverter's series string and/or parallel connections. Distributed modularization design philosophy for YSmart Smart Microinverter will ensure the productiveness of the whole system will not affect by a single point of failure. Each Smart Microinverter is individually connected to one PV module in your array. This unique configuration means that an individual Maximum Peak Power Point Tracker (MPPT) controls each PV module. This ensures that the maximum power available from each PV module is exported to the utility grid regardless of the performance of the other PV modules in the array. That is, although individual PV modules in the array may be affected by shading, soiling, orientation, or PV module mismatch, the Smart Microinverter ensures top performance for its associated PV module. The result is maximum energy production from your PV system and gets return on investment in less time.

Advantages of YSmart Smart Microinverter

1. Unique circuit design, choice of import industrial electronic components, higher efficiency, more stable performance.
2. Creative MPPT technology, efficiency more than 99%, faster reaction, more sensitive of reaction and more reliable of Maximum power point locking.
3. Parallel modular design, small volume, distributed installation, easy for system configuration, flexible for combination, strong expansibility of system.

Warranty

Warranty Conditions

Warranty Period: 15-year limited warranty period.

Warranty Time Start: From the date of bill of lading.

Warranty Evidence: The bill of lading date, product(s) serial number(s), and product(s) model number(s), and a completed warranty card.

YSmart grants an implied warranty of 1 year to the inverter from date of purchase for repair or replace the Defective Product free of charge includes freight cost. Furthermore, YSmart provides an additional limited warranty for 14 years for repair or replace the Defective Product free of charge but non-free of freight charge. For warranty questions, please contact your retailer or installer. If your device has a defect or malfunction during the warranty period, please also contact your retailer or installer.

Warranty claims are excluded for:

- Alterations or repairs to the unit without prior authorization
- Improper use of device
- Improper and non-standard installation
- Improper operation
- operating the equipment with defective safety devices
- Impact of foreign objects and force majeure (lightning, surge, storm, fire)
- Inadequate or nonexistent ventilation of the device
- disregarding of safety regulations
- shipping damage
- The Product has been improperly stored or was damaged while in possession of the Dealer or end user;

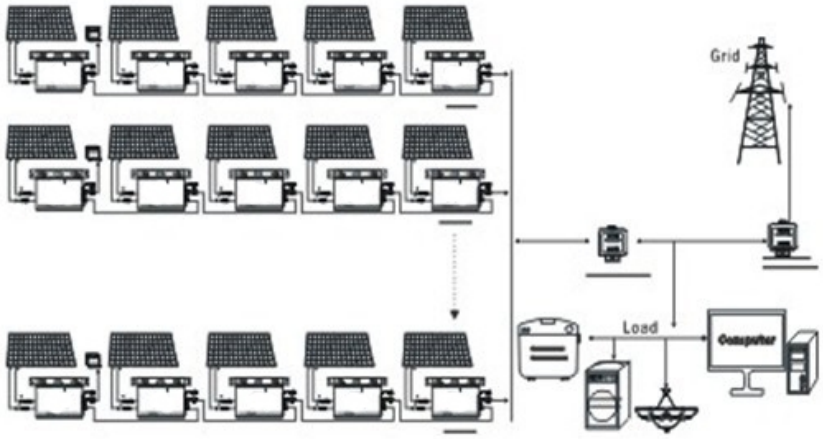
WARNING! Only qualified electrical professionals can do the trouble shooting of the Smart Microinverter system.

WARNING! Disconnect the AC grid first before disconnecting the inverter from the PV module.

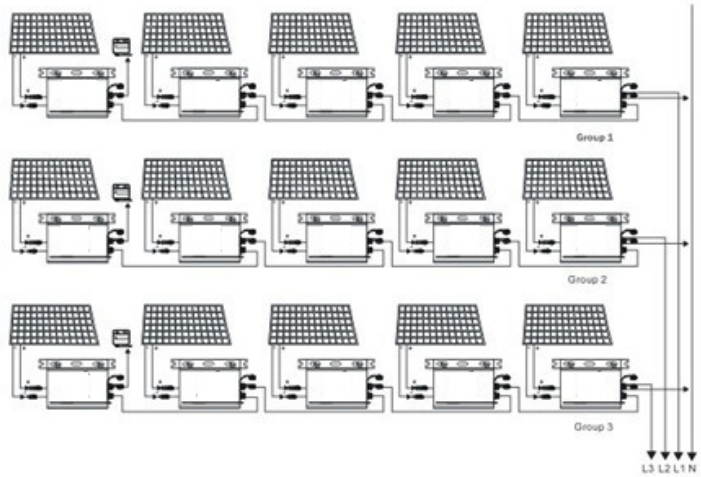
Stackable used：

For more than one pcs inverter,you can connect like this.5pcs inverter in a group,just need one launcher.connect as below

Single phase output stackable used method：



Three phase output connect method.



Large scale photovoltaic power generation engineering application

4. Adopting high-frequency isolation transformer type, high efficiency, high security.

5. Perfect electrical protection function.

6. Aluminum alloy housing, not rust, heat-resisting and cold-resistant as well as anti-corrosion.

7. Getting electronic circuit design, appearance design and other core technology patents.

8. Package of high-quality thermal potting silicone, completely cut off from electronic components in contact with air, almost stop the aging of electronic components, greatly enhancing the life of the product.

9.MCU central control and information collection, with the information transmitter and information collection, remote monitoring, so you can learn anytime, anywhere and monitor the status of solar power wherever.

(Communication configuration section separately)

Important Safety Information

Read this First

This manual contains important instructions for use during installation and maintenance of the YSmart Smart Microinverter. To reduce the risk of electrical shock, and to ensure the safe installation and operation of the YSmart Smart Microinverter, the following safety symbols appear throughout this document to indicate dangerous conditions and important safety instructions.

DANGER! This indicates a hazardous situation, which if not avoided, will result in death or serious injury.

WARNING! This indicates a situation where failure to follow instructions may be a safety hazard or cause equipment malfunction. Use extreme caution and follow instructions carefully.

NOTE: This indicates information particularly important for optimal system operation.

Follow instruction closely.

Safety Instruction

Do not use Smart microinverter in a manner not specified by the manufacturer. Doing so

may cause death or injury to persons, or damage to equipment.

Perform all electrical installations in accordance with all applicable local electrical codes.

Be aware that only qualified personnel should disassemble and repair the Smart Microinverters and non-qualified personnel should not install and/or repair.

Do not attempt to repair the Smart Microinverter; it contains no user-serviceable parts. If it fails, contact YSmart customer service to claim a return merchandise authorization and start the replacement process. Tampering with or opening the Smart Microinverter will void the warranty.

If the AC cable connector on the microinverter is damaged or broken, do not install the unit.

Before installing or using the Smart Microinverter, read all instructions and cautionary markings in the technical description and on the Smart Microinverter System and the PV equipment.

Connect the Smart Microinverter to the utility grid only after you have completed all installation procedures and after receiving prior approval from the local electrical utility company.

Be aware that the body of the Smart Microinverter is the heat sink. Under normal operating conditions, the temperature is 15°C above ambient, but under extreme conditions the microinverter can reach a temperature of 75°C. To reduce risk of burns, use caution when working with microinverters.

Do NOT disconnect the PV module from the Smart Microinverter without first removing AC power.

The better disconnect DC terminal first. It may cause of components damaged if removing AC power first when Smart Microinverter still operation. It is available to disconnect AC power first when Smart Microinverter is not working but the better to disconnect the DC terminal first.

Keep away from children, no touching, no playing so as not to electric shock when using.

Please installed in place of low humidity and well-ventilated so as to avoid inverter overheating, as well as clear around the inflammable and explosive materials.

Troubleshooting a non-operating Smart microinverter

System halted and /or without power output

a. Check if switch of Smart Microinverter is turn on or not,

b. Check if the DC connections to Smart Microinverter are correct or not,

c. Check if any reverse DC connections for positive or negative or not,

d. Check if DC input voltage is within the range of the Smart Micro inverter's not,

e.Check if the utility grid voltage and frequency are fit in with the serviceable range of Smart Microinverte or not,

f. Check if fuses of DC side are fusing or not,

g. Check if utility grid voltage properly connecting to Smart Microinverters or not,

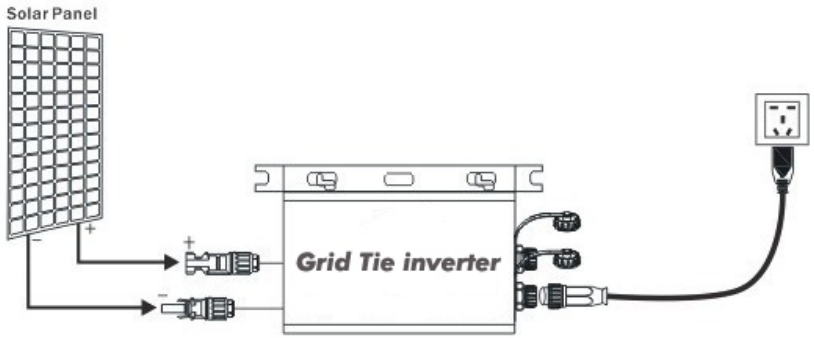
DC power supply is normal but no power output:

a. Check if utility grid voltage is connecting to Smart Microinverter or not,

b. Check if utility grid voltage is fit in with the serviceable range of Smart Microinverte or not,

c. Please visual inspection for the LED operation status, red LED will turn off and green LED will flash or run when inverter connecting with DC power source which input voltage is fit in with the range as specified and power grid properly. If still no power output when green LED flash or run, probably internal components are damaged, in such case, please turn the defective inverter back for further analyze.

Please visual inspection for the LED operation status, red LED still turn on and green LED without any flash or run when inverter connecting with DC power source which input voltage is fit in with the range as specified and power grid properly, probably internal components are damaged, in such case, please turn the defective inverter back for further analyze.



Status Indications of LED

1. Red LED indicator lights up under any conditions include but not limited:

a. Low-voltage protection (DC input voltage lower than Min. input voltage of inverters),

b. Over-voltage protection (DC input voltage higher than Max. input voltage of inverters),

c. Over-temperature protection (inverters will shut down for power output when temperature of body of inverters higher than 65-75 ℃, and inverter will be automatically restart up when temperature down to 40-50℃.)

d. Power grid fault protection when 110VAC or 220VAC grid power outage and/or tripped.

e. Islanding protection: inverter will be automatically shut down for power output when disconnect with power grid.

2. Green LED indicator lights up under any conditions include but not limited:

a. Green LED flash: adjusting for power output, MPPT operating for tracking.

b. Green LED long light: indicates inverter locking-in Max. output power operation status.

Parameter table of SY-IP series smart grid tie micro inverter (suit for 72cell solar panel, Vmp:35-37;Voc:44-46V)

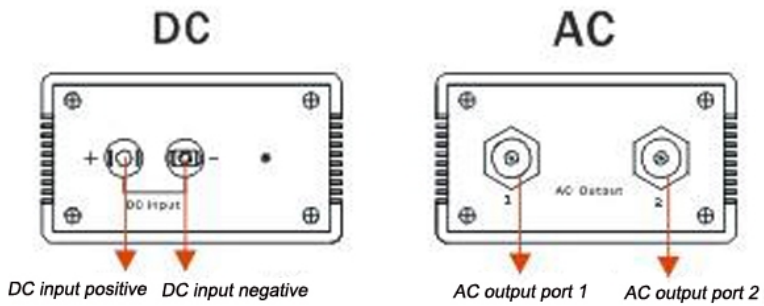
1	Power	200W	250W	300W
2	Solar panels	≥200W	≥250W	≥300W
3	DC MAX input	230W	280W	320W
4	DC input range	22-45VDC		
5	MPPT Voltage	31-40V		
6	DC MAX current	15A	25A	30A
7	AC MAX output	215W	270W	320W
8	AC output range	120VAC(90-140VAC) or 230VAC(190-260VAC)		
9	Frequency range	50Hz/60Hz(Auto control)		
10	Power Factor	>98.5%		
11	THD	<5%		
12	Phase Shift	<2%		
13	Efficiency	120VAC(90-140VAC)		
14	Peak Efficiency	>93%	>92%	>91%
15	Stable Efficiency	>92%	>91%	>90%
16	Efficiency	230VAC(190-260VAC)		
17	Peak Efficiency	>95%	>95%	>95%
18	Stable Efficiency	>93%	>93%	>93%
19	Protection	Islanding; Short-circuit; converse connection; Low Voltage; Over Voltage; Over temperature Protection		
20	Work Temperature	‘-25℃-65℃		
21	Work Humidity	Waterproof design		
22	Grade of Waterproof	IP65		
23	Show	Red and green LED		
24	Cooling	thermal conductivity silica gel（Natural cooling）		
25	Stand-by Power	1-2W		
26	EMC	EN61000-6-3:2007 EN61000-6-1:2007		
27	Grid Disturbance	EN 50178+EN 62109-1+VDE0126-1-12		
28	Grid Detection	DIN VDE 1026 UL1741		
29	Certificate	CE		

Package

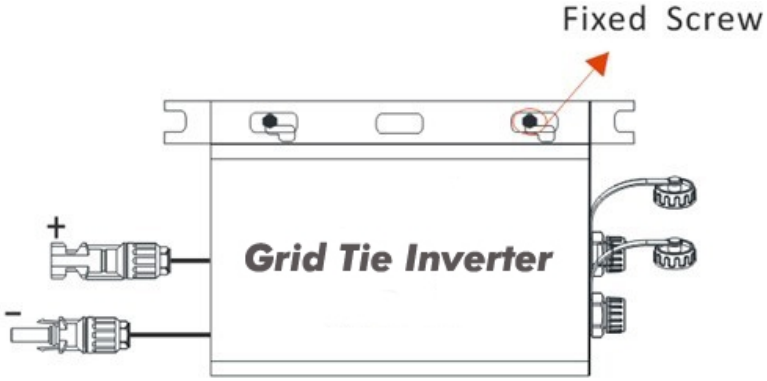
Net Weight	1.3KGS/PCS
Gross Weight	2.0KGS/PCS
Inner Box (L x W x H)	30*20.3*11.3CM
Carton(L x W x H)	42*31.5*35.5CM

Installation(for 1pcs inverter)

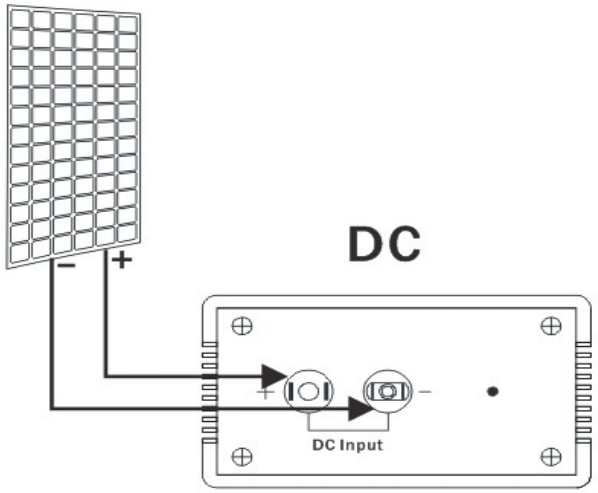
一，Diagrammatize DC input and AC output terminals,



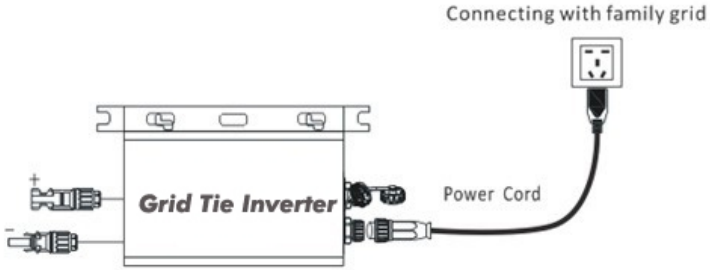
二，Attach the Smart Microinverter to the racking or fix onto the wall,



三， Properly connect the positive and negative of solar panel and Smart Microinverter,



四， AC power cable connects with Smart Microinverter and residential power grid which refers to low voltage civilian single-phase power grid.



五，Switch on power grid after check for input and output connections are correct and then switch on the Smart Microinverter. Red/green LED lights up first, and red LED lights off follow on and green LED lights on and flash fast, next LED flash slowly which indicates that Smart Microinverter is in processing of MPPT operation for tracking down the Maximum power point from solar module. Finally, green LED last lights on and indicates that maximum power point lock-in. Smart Micro inverter proper functioning and outputsteady.